

Topic: Adding and subtracting fractions**Question:** Simplify the expression.

$$\frac{1}{5} + \frac{3}{7}$$

Answer choices:

A $\frac{11}{35}$

B $\frac{4}{12}$

C $\frac{3}{35}$

D $\frac{22}{35}$



Solution: D

To add two fractions, they must have the same denominator. To find a common denominator, we look for the least common multiple of the denominators of the two fractions, so we'll look for the least common multiple of 5 and 7. The smallest number that's divisible by 5 and 7 is 35, so 35 is the least common multiple. Since $35 = 5 \cdot 7$, we have to multiply the numerator and denominator of the first fraction ($1/5$) by 7, and we have to multiply the numerator and denominator of the second fraction ($3/7$) by 5. Therefore, we get

$$\frac{1}{5} + \frac{3}{7}$$

$$\frac{1 \cdot 7}{5 \cdot 7} + \frac{3 \cdot 5}{7 \cdot 5}$$

$$\frac{7}{35} + \frac{15}{35}$$

$$\frac{7 + 15}{35}$$

$$\frac{22}{35}$$



Topic: Adding and subtracting fractions

Question: What is the least common denominator of the fractions in the expression?

$$\frac{1}{2} + \frac{1}{8} + \frac{1}{20}$$

Answer choices:

- A 20
- B 8
- C 40
- D 320



Solution: C

To find the least common denominator of two or more fractions, we need to find the least common multiple of their denominators. In other words, what's the smallest number that's divisible by 2, 8 and 20?

To figure this out, we'll use the largest denominator (20), and list its first few positive multiples.

$$20 \cdot 1 = 20$$

$$20 \cdot 2 = 40$$

$$20 \cdot 3 = 60$$

$$20 \cdot 4 = 80$$

$$20 \cdot 5 = 100$$

20 is divisible by both 2 and 20, but not by 8. However, 40 is divisible by 2, 8, and 20, so 40 is the least common multiple of these three numbers, and therefore it's the least common denominator of the three fractions in the given expression.



Topic: Adding and subtracting fractions**Question:** Simplify the expression.

$$\frac{10}{7} - \frac{6}{15}$$

Answer choices:

A $\frac{3}{4}$

B $\frac{7}{15}$

C $\frac{4}{8}$

D $\frac{36}{35}$



Solution: D

To subtract one fraction from another, they have to have a common denominator.

$$\frac{10}{7} - \frac{6}{15}$$

$$\frac{10}{7} \left(\frac{15}{15} \right) - \frac{6}{15} \left(\frac{7}{7} \right)$$

$$\frac{150}{105} - \frac{42}{105}$$

$$\frac{150 - 42}{105}$$

$$\frac{108}{105}$$

Reduce the fraction to its lowest terms.

$$\frac{108 \div 3}{105 \div 3}$$

$$\frac{36}{35}$$

